SOUTHEAST REGIONAL OFFICE
CLEAN WATER PROGRAM

Application Type	**Renewal**	**NPDES PERMIT FACT SHEET MAJOR RENEWALS NON-POTWs**		Application No.	**PA0011533**
Facility Type	**IW**			APS ID	**738713**
Major / Minor	**Major**			Authorization ID	**862473**

Applicant and Facility Information

Applicant Name	**Philadelphia Energy Solutions refining and Marketing LLC**	Facility Name	**Girard Point Processing Area**
Applicant Address	3144 W Passyunk Avenue Philadelphia, PA 19145-5208	Facility Address	3144 W. Passyunk Avenue Philadelphia, PA 19145-5299
Applicant Contact	James Barksdale	Facility Contact	James Disario
Applicant Phone	(215)339-2074	Facility Phone	(215) 339-2580
Client ID	266986	Site ID	456930
SIC Code	2911	Municipality	City of Philadelphia
SIC Description	Manufacturing - Petroleum Refining	County	Philadelphia
Date Application Received	August 31, 2010	EPA Waived?	No
Date Application Accepted		If No, Reason	Major Facility
Purpose of Application	Transfer of NPDES permit for discharge of treated wastewater from Girard Point Processing Area.		

Internal Review and Recommendations

The permittee has requested an approval to transfer of a NPDES permit to discharge industrial process wastewater from an industrial wastewater treatment plant, overflows from retention basins, steam condensate, non-contact cooling water, and stormwater from their Processing Area located in the City of Philadelphia. The treated wastewater will discharge into Schuylkill River in Zone 4 of the Delaware Estuary - Tidal.

Department has received NPDES permit transfer application in August, 2012. The Philadelphia Energy Solutions Refining and Marketing LLC has become the new owner of the permitted facility along with Point Breeze Processing Area on September 7, 2012. The permit will be transferred from Sunoco Inc. (R&M) and effective date of the permit is November 1, 2012.

The following internal review and recommendations were used to determine special requirements applicable to the referenced facility:

The Girard Point Processing Area is a Petroleum Refinery. SIC Code for the facility is 2911 and 4930. The facility is also producing about 40% of their electricity consumption. The refining process involves the following: Crude Oil Processing: Atmospheric Crude Distillation, Crude Desalting and Vacuum Crude Distillation; Cracking and Coking: Fluid Catalytic Cracking, Hydrocracker and Hydrogen Desulfurization; Reforming and Alkylation: Catalytic Reforming, HF Alkylation and Isomeration. The facility falls under 40 C.F.R. 419, Subpart E. The facility is also treating the water for their process use and for boiler and cooling tower.
The facility has numerous outfalls. Description of sources and flow data for each outfall is provided below:

Outfall No.	Average Monthly Flow (MGD)	Sources of Wastewater	Applicable C.F.R. Category
001	N/A	Emergency discharge of process and contaminated stormwater from O/W separator No. 4	40 C.F.R. 419.52, (e) (2) & 419.53 (f) (2)
002	max daily 5.3	Emergency discharge of contaminated stormwater from O/W separator No. 3	40 C.F.R. 419.52, (e) (1)

Approve	Return	Deny	Signatures	Date
X			Begay Omuralieva / Environmental Engineering Specialist	09/17/2012
X			Pravin Patel, Acting Chief	09/17/2012
X			Jenifer L. Fields, P.E. / Program Manager	09/21/2012

004	1.3	Non-contact cooling water from scraper and condensate	40 C.F.R. 419.50, d
005	N/A	Discharge of Stormwater runoffs from roof drains	Based on PAG03
009	N/A	Emergency discharge from O/W separator No. 2B	40 C.F.R. 419.52, (e) (2) & 419.53 (f) (2)
010	N/A	Discharge of Stormwater runoffs from roof drains	Based on PAG03
011	1.2	Non-contact cooling water from Bluebird air compressor	40 C.F.R. 419.52, (d)
012	N/A	Discharge of Stormwater runoffs from roof drains	Based on PAG03
014	max. daily 2.448	Emergency discharge of contaminated stormwater from O/W separator No. 8	40 C.F.R. 419.52, (e) (1)
015	6.22	Treated Process wastewater from Treatment plant	40 C.F.R. 419.52, 419.53, 419.54

The discharges from all the outfalls are reviewed based on Water Quality Based Effluent Limits (WQBELs), Technology Based Effluent Limits (TBELs), and Delaware River Basin Commission (DRBC) requirements. Most stringent limits are applied to the discharges.
The first draft was issued on January 18, 2012.

On March 27, 2012 prior to the draft's comments due date DEP and Sunoco met to discuss the extension of due date and basis for certain conditions. DEP has provided DRBC's PCB updated language and Section 316(b) – Cooling water intake guidelines from Central Office of DEP. Sunoco has provided with updated information of process water flows. Had some preliminary comments to discuss.
Following meeting, On March 28, 2012 DEP has received official comments from Permittee (Appendix A). Some of them have been responded through numerous emails and summarized below:

1.

a. *Reducing Chemical Oxygen Demand (COD), Total Suspended Solids (TSS) and Oil and Grease (O&G) monitoring frequency (they have been imposed in the Amendment 2 of the permit on January 31, 2011).*
Since issuance of the amended permit in 2011 DEP has worked on correcting the problematic non-compliance issues with the permittee at its treatment plant. This includes reviewing the corrective actions following numerous upsets of the plant, work done on maintaining its oil and water separators and approving of the temporary and permanent attempts to bring the facility in compliance. Based on recent data DEP has revised the monitoring frequency for TSS and COD from 1/day to 2/week; O&G from 1/day to 1/week.

b. *Basis for Effluent Limitations for pH and Phenol.*
DRBC's stream quality objectives were basis for recalculating the pH limits. According to the Docket No. D-1969-115-2 and draft Docket D-1969-115-3, pH limits of 6.0 – 9.0 STU were accepted by DRBC. Since there is no study of receiving streams background concentration the effluent requirement for pH will be revised to within limits of 6.0 – 9.0 STU at all times. Phenol effluent concentration was revised using DRBC's stream quality objectives as 0.02 mg/l Max and mass balance equation (revised Q_{7-10} of the receiving stream as 159 MGD was used). Therefore, effluent requirements for Phenol is listed in the permit as following: Report for ave monthly and 0.5 mg/l for Daily max and IMAX (calculation for Phenols on p. 28 of this fact sheet)

c. *Concentration – based effluent limitations for BOD_5, COD, TSS, O&G, Ammonia-Nitrogen, Hexavalent Chromium, Total Chromium, Total Sulfide and Total Phenolics.*
Inclusion of concentration limits for the effluent is contained in 40 CFR;
"Pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit shall require the permittee to comply with both limitations".
Also establishment of the concentration limitations for these parameters has been in effect since 1980's due to the specifics of the facility such as flow variability.

d. *Total Dissolved Solids (TDS) Effluent Limitations*
The proposed effluent limits for TDS are revised based on DRBC's draft Docket No. D-69-115-3 (Docket) which includes a TDS effluent limits variance of 4,108 mg/l for Outfall No. 015. Until a more in depth study has been performed, the TDS effluent limit of 4,108 mg/l will be continued. The Sunoco is required to perform a TDS Modeling Study of the effluent from Outfall No. 015 to determine the area of influence for TDS at Outfall No. 015 and the resultant mixing zone required to meet current DRBC WQR within 1 (one) year of the issuance of the Docket No. D-69-115-3 or 6 (six) month of after the ambient velocity data required in the Docket has been approved, whichever is later (DRBC's Draft Docket is attached)

Internal Review and Recommendations

e. *Recalculate Technology Based Effluent Limitations With Additional Information*
Provided data in Attachment A of the comments document was used to recalculate technology based effluent limitations (see pages 26-28 of this fact sheet).

f. *Water Quality Based Effluent Limitations.*
The request was resubmitted with updated effluent sampling for various parameters. The Reasonable Potential Evaluation was performed. Based on the evaluation 5 parameters of concern were determined to have reasonable potential: Thallium, Lead, Hexachlorobenzene, Benzidine and N-Nitrosodimethylamine. The monitoring requirements and effluent limits are included in the permit accordingly (see page 28-30 of this fact sheet)

g. *Fluoride*
The calculated effluent limit for Fluoride was revised and limits are 12.5 mg/l as ave. mo; 25 mg/l as daily max and 33 mg/l as IMAX.

h. *Whole Effluent Toxicity Requirements*
The WET limits are recalculated based on new Q_{7-10} data for receiving stream and WET requirement is revised accordingly (see pages 31-32) .

i. *Newly required samples for Total Thallium, 2,4-dinistrotoluene, 3,3-dichlorobenzidine, acrolein, total cadmium, hexachlorobenzene, benzidine, bis(2-chloroethyl)ether, chrysene, dibenzo(a,h)anthracene, indeno (1,2,3-cd) pyrene, n-nitrosodimethylamine, n-nitrosodimethylamine, n-nitrosodi-n-propylamine, and vinyl chloride*.
See reply in Section 1. (f) above.

j. *Effluent Limitations Below Method Detection Limits*
Based on our revised evaluation of the effluent limits the referenced four pollutants are required to monitor only. There are no numerical limits associated with these pollutants. Therefore, the MDL issue does not apply. Sunoco is required to use the most sensitive method listed in Part C.

2. *NPDES Public Notice*
The "No Discharge from S-19 Sump Pump" condition is removed from the proposed revised public notice.

3. *Part A, section II (p.21) – Definition of "Hauled –In Wastes"*
Sunoco has proposed changing the definition of "Hauled-In Waste" by adding : "*Notwithstanding the foregoing hauled-in wastes do not include any waste that is generated from within the Philadelphia Refining Complex*".
Although not agreeing, DEP proposes to clarify the nature of the restrictions by changing "sewage" to "wastewater" in definition of "Hauled-In waste" as following:
Hauled-In Wastes means any waste that is introduced into a treatment facility through any method other than a direct connection to the wastewater collection system. The term includes wastes transported to and disposed of within the treatment facility or other entry points within the collection system.

4. *Part A. Section III, Paragraph C.2 (p.24) – Planned Changes to Waste Stream*
See reply in Section 3. above

5. *Part B, Section I, Paragraph A (p. 28) - Compliance schedule*
The compliance schedule was not necessary, therefore is not included in the permit.

6. *Part C, Section I, Paragraph A. (p.33)*
This section is being revised to read: "If at any time the Department determines that the discharge permitted herein creates a public nuisance or causes environmental harm to the receiving water of the Commonwealth, the Department may require the permittee to adopt such remedial measures as will produce a satisfactory effluent. In such an event, the permittee shall have the right to appeal that new remedial requirement as provided by law. If the permittee fails to adopt such remedial measures within the time specified by the Department, the right herein granted to discharge to the receiving water of the Commonwealth shall, upon notice by the Department, cease and become null and void."

Internal Review and Recommendations

This revision clarifies the Department's legal authority while making clear that this section does not eliminate any existing right of appeal Sunoco might have.

7. *Part C, Section I, Paragraph C (p.33)*
The referenced special requirement is removed from Part C.

8. *Part C, Section I, Paragraph M, (p.35) – O&M Plan*
Sunoco proposed to remove the special requirement regarding developing and revising an O&M Plan. The removal of this special requirement is denied. The facility has filed a "Preliminary O&M Plan" which is incorporated into a Consent Order and Agreement ("CO&A") dated 06/30/11 with a timetable. Lack of an adequate and implemented O&M plan was a direct cause of recent non-compliance. Therefore, the O&M Plan requirement will remain in the permit. The facility needs to develop specific maintenance schedules for taking down various units for maintenance and repairing works. It also needs to specify measures to be taken during wet weather events and "upsets" of the plant.

9. *Part C, Section I, Paragraph P (p.35) – PCB Requirements*
Sunoco proposed correction on the PCB PMP submittal and revisions of the paragraph. The requirement was replaced by a standard DRBC revised PCB PMP requirement.

10. *Part C, Section II, Paragraph F (p.42) – Notification of Chemical Additives*
With respect to notification of proposals to use chemical additives, Sunoco expressed concern about the requirement that notification be complete to be processed. The company has had some history of omitting clearly required vital information from such submissions. Compliance with the requirements of Part C, Section I, Paragraph K, which contains an easy to use checklist, will obviate the need for any concern about this condition.

11. *Part C, Section II, Paragraph F (p.42) – Chemical Additives*
To clarify usage of chemical additives requirements Department have added following to the last sentence in Section II, Paragraph A: Chemical additives do not include chemicals or other substances that are utilized in the manufacturing of products, which are not expected in wastewater effluent or otherwise will have effluent concentrations that are quantified in the permit application

12. *Part C, Section III (p.42-44) - Cooling Water Intake Structures.*
Requested 3 years compliance with submittal of the Section 316(b) requirements is approved.

13. *Part C, Section VI, Paragraph D (p.45)*
The PPC Plan submitted by Sunoco is dated prior to the Consent Order and Agreement. This PPC Plan is required to be updated. Currently, the Department requires a comprehensive Plan called Environmental Emergency Response Plan (it includes PPC Plan; SPCC, SWPPP etc.).

On July 1, 2012 DEP have provided revised redraft of the permit to Mr. Barksdale – Environmental Manager for Sunoco Inc. Revisions were done to the revised draft permit based on proposed comments (comments email attached to this fact sheet – Appendix A).

The draft No. 2 was issued on July 6, 2012 and published in PA Bulletin on July 21, 2012.

EPA has commented the draft permit. Based on EPA's comments followings were revised:

a. DRBC's accepted TDS limit of 4108 mg/l is only applicable to Daily Max and IMAX,, therefore the ave. monthly concentration will remain 3939 mg/l (loading as 151,221 lbs./day) as in the previous permit.
b. Part C special requirement is added to specify the conditions to calculate the monthly and weekly percent removal based on monitoring of the influent and effluent BOD_5. It also requires permittee to conduct a study to establish a ration between $CBOD_{20}$ and BOD_5.
c. Chemical additives recalculated based on corrected flows (for aquatic and human health criteria).

The permittee commented the Draft No.2. Based on the comments following final revisions are made:

1. Benzidine, Hexachlorobenzene, N-Nitrosodimethylamine, Thallium, and Lead

The review of the sampling results indicates that effluent level of these pollutants are below the level of the most sensitive test method but above the Water Quality limit as below:

Parameters	WQ Limit (ug/l)	MDL (ug/l)	Reported effluent (ug/l)
Benzidine	0.008	44	<0.08
Hexachlorobenzene	0.026	0.05	<0.05
N-Nitrosodimethylamine	0.0653	0.15	<0.14
Thallium	6.38	1	<0.2

A single sampling event does not constitute a database adequate to ensure that the concentration of these pollutants will remain below MDL. The Department considers ten to a dozen sample events, distributed to account for seasonal variations, necessary to provide adequate data. Therefore, the Department will include monitoring requirements for these pollutants to collect additional data during at least the next 1(one) year. If the levels are uniformly well below MDL, upon request, the Department will consider removing these parameters from the permit. The Department could reduce the monthly monitoring requirement quarterly, but over two to three years in order to evaluate "reasonable potential".

The Lead monitoring frequency will be reduced from monthly to quarterly.

2. "Hauled-In Wastes"
   Based on provided revised Module 3 of the NPDES application following requirement will be added to the permit's Part C as Other Requirement W:

"Except as explicitly authorized elsewhere in this Permit, the permittee may not accept non-process wastewater at Girard Point Industrial Wastewater Treatment Plant other than the following from the Point Breeze and Girard Point Refineries, collected by vacuum trucks from various type of wastewater: tank or vessel cleanout rinsates; process sewer system cleanouts; stormwater system maintenance and cleanouts; oil/water separation system maintenance cleanouts; spill cleanup residue and related rinsates; filtrates from dewatering sludge from tank cleanings; waste materials that cannot be completely purged or drained from process equipment or piping prior to maintenance; stormwater that accumulates in containment dikes or basins; off-specification material that cannot be returned to the processing units; and/or remediation wastes (including groundwater well development and purge wastewaters or wastewaters from other remediation system activities). The rate of acceptance of these wastewater must be controlled to ensure that it will not adversely affect the operation of the Industrial Wastewater Treatment Plant and/or its effluent quality".

3. $CBOD_{20}$

In light of DRBC's docket, Part C, Requirement V will be revised to provide that the permittee can request to reduce $CBOD_{20}$ monitoring frequency, once a relationship is established between $CBOD_{20}$ and BOD_5 based on the results of permittee's study.

4. Cooling Water Intake Structures

Part C, Section III will have an additional paragraph F as follows*: "The permittee may use EPA's Site Visit Report dated July 14, 2009 to develop its report on the cooling water intake technology"* and the submission time frame will be changed from 3 years of the issuance of the permit to December 31, 2015.

Discharge, Receiving Waters and Water Supply Information

Outfall No. 001, 002, 004, 005, 009, 010, 011, 014 and 015

Wastewater Description: various

Receiving Waters	Schuylkill River	Stream Code	00833
NHD Com ID	25988868	RMI	From 1.3 to 2.8 mi
Drainage Area	1901 – 1911 sq. mi.	Yield (cfs/mi^2)	0.13
Q_{7-10} Flow (cfs)	246	Q_{7-10} Basis	DRBC
Elevation (ft)	8 - 9	Slope (ft/ft)	n/a
Watershed No.	3F	Chapter 93 Class.	WWF, MF
Assessment Status	Impaired		
Cause(s) of Impairment	PCB		
Source(s) of Impairment	Source Unknown		
TMDL Status	Final, 04/07/2007	Name	Schuylkill River PCB TMDL

Nearest Downstream Public Water Supply Intake	None		
PWS Waters	n/a	Flow at Intake (cfs)	n/a
PWS RMI	n/a	Distance from Outfall (mi)	n/a

Changes Since Last Permit Issuance: None

Other Comments:

Compliance History

DMR Data for Outfall 001 (from May 1, 2011 to April 30, 2012)

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
No discharge in past year.												

DMR Data for Outfall 002 (from May 1, 2011 to April 30, 2012)

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
Flow (MGD) Average Monthly				5.328	5.328			1.055				
Flow (MGD) Daily Maximum				5.328	5.328			1.055				
pH (S.U.) IMAX				8.0	8.2			7.5				
pH (S.U.) Instantaneous Minimum				7.5	7.5			7.5				
Oil and Grease (mg/L) IMAX				28.0	7			10				
TOC (mg/L) IMAX				11.7	9			56				

DMR Data for Outfall 004 (from May 1, 2011 to April 30, 2012)

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
Flow (MGD) Average Monthly											0.81	0.86
Flow (MGD) Daily Maximum											0.81	0.86
pH (S.U.) IMAX											8.2	8.7
pH (S.U.) Instantaneous Minimum											8.2	7.9
Temperature (°F) IMAX											86	86
TOC (mg/L) Effluent Net IMAX											1.2	0.8

DMR Data for Outfall 005 (from May 1, 2011 to April 30, 2012)

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
No discharge in past year.												

DMR Data for Outfall 009 (from May 1, 2011 to April 30, 2012)

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
Flow (MGD) Average Monthly				.360								
Flow (MGD) Daily Maximum				.360								
pH (S.U.) IMAX				7.42								
pH (S.U.) Instantaneous Minimum				7.42								
BOD5 (mg/L) Average Monthly				193								
BOD5 (mg/L) Daily Maximum				193								
COD (mg/L) Average Monthly				645								
COD (mg/L) Daily Maximum				645								
TSS (mg/L) Average Monthly				72								
TSS (mg/L) Daily Maximum				72								
Oil and Grease (mg/L) Average Monthly				130								
Oil and Grease (mg/L) Daily Maximum				130								
Hexavalent Chromium (mg/L) Average Monthly				< 0.010								
Hexavalent Chromium (mg/L) Daily Maximum				< 0.010								
Total Chromium (mg/L) Average Monthly				< 0.01								

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
Total Chromium (mg/L) Daily Maximum				< 0.01								
Total Phenolics (mg/L) Average Monthly				13.0								
Total Phenolics (mg/L) Daily Maximum				13.0								

DMR Data for Outfall 010 (from May 1, 2011 to April 30, 2012)

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
No discharge in past year.												

DMR Data for Outfall 011 (from May 1, 2011 to April 30, 2012)

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
Flow (MGD) Average Monthly	1.88	0.91	0.69	0.62	0.81	0.99	0.72	0.49	0.487	0.49	0.487	0.487
Flow (MGD) Daily Maximum	3.33	1.81	0.81	0.81	0.81	0.99	1.38	0.49	0.487	0.49	0.487	0.487
pH (S.U.) IMAX	7.6	8.4	7.4	7.3	7.4	7.3	7.7	7.6	7.8	8.2	7.9	8.6
pH (S.U.) Instantaneous Minimum	7.4	7.6	7.2	6.7	6.9	7.0	7.5	7.5	7.6	7.8	7.5	7.5
Temperature (°F) IMAX	75	97	88	88	76	72	77	72	65	70	79	84
TOC (mg/L) Effluent Net IMAX	0.1	0.1	1.2	1.6	0.8	0.0	0.0	2.4	0.1	0.4	0.4	0.6

DMR Data for Outfall 012 (from May 1, 2011 to April 30, 2012)

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
No discharge in past year.												

DMR Data for Outfall 014 (from May 1, 2011 to April 30, 2012)

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
Flow (MGD) Average Monthly				2.448	4.896			2.397				
Flow (MGD) Daily Maximum				2.448	4.896			2.397				
pH (S.U.) IMAX				7.9	8.2			7.4				
pH (S.U.) Instantaneous Minimum				7.3	7.4			7.4				
Oil and Grease (mg/L) IMAX				15.0	9			6				
TOC (mg/L) IMAX				12.4	8			10				

DMR Data for Outfall 015 (from May 1, 2011 to April 30, 2012)

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
Flow (MGD) Average Monthly	7.01	7.37	6.08	7.55	7.33	5.60	5.38	5.69	5.70	4.76	5.41	5.70
Flow (MGD) Daily Maximum	8.43	10.08	7.34	10.83	10.87	8.32	7.27	8.04	7.13	5.54	6.23	7.70
pH (S.U.) Maximum	7.5	7.6	7.9	7.8	7.7	7.8	7.9	7.8	7.9	7.8	7.9	7.9
pH (S.U.) Minimum	6.9	7.1	7.4	7.0	6.7	7.5	7.2	7.1	7.1	7.4	7.5	7.6
BOD5 (lbs/day) Average Monthly	162	206	237	376	223	165	320	253	389	522	347	458
BOD5 (lbs/day) Daily Maximum	373	901	781	624	384	428	1052	555	1925	1821	1137	1824
BOD5 (mg/L) Average Monthly	3	3	5	6	4.0	4	7	6	8	13	8	10
BOD5 (mg/L) Daily Maximum	6	13	14	12	7.8	9	27	13	41	46	26	37
CBOD20 (lbs/day) Average Monthly	113	370	103	52	191	222	98	404	249	340	717	681
BOD5 % Removal (%) Percent Removal Minimum Monthly % Removal	98.75	98.27	98.46	97.00	98.28	98.66	97.00	96.91	96.90	96.58	96.90	96.91
COD (lbs/day) Effluent Net Average Monthly	307	221	13	574	827	444	801	694	210	336	788	106

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
COD (lbs/day) Effluent Net Daily Maximum	1043	1572	0	363	1739	1235	5686	555	240	2450	1172	0
COD (mg/L) Average Monthly	38	38	52	56	65	62	70	64	46	63	74	52
COD (mg/L) Daily Maximum	66	88	95	95	126	109	210	114	112	156	146	85
TSS (lbs/day) Effluent Net Average Monthly	16	12	3	160	108	266	67	456	9	116	145	7
TSS (lbs/day) Effluent Net Daily Maximum	0	0	0	802	285	2482	198	1371	0	1601	1144	0
TSS (mg/L) Average Monthly	2	2	2	7	5	11	7	17	4	8	8	5
TSS (mg/L) Daily Maximum	8	6	7	34	26	64	42	63	8	58	41	8
Total Dissolved Solids (lbs/day) Average Monthly	133062	137189	141458	135135	122411	140957	146878	152805	129718	83231	109639	121365
Total Dissolved Solids (lbs/day) Daily Maximum	138692	170089	155230	198408	161724	153371	167538	196465	181074	108601	123786	142995
Total Dissolved Solids (mg/L) Average Monthly	2360	2366	2792	2189	2152	3141	3183	3333	2723	2102	2500	2504
Total Dissolved Solids (mg/L) Daily Maximum	2716	2854	3252	2824	3478	3584	3722	4156	3762	2612	2834	2964
Oil and Grease (lbs/day) Effluent Net Average Monthly	216	196	134	< 154	< 179	129	131	148	135	101	137	139
Oil and Grease (lbs/day) Effluent Net Daily Maximum	410	155	21	< 189	< 184	149	100	237	87	0	67	98
Oil and Grease (mg/L) Average Monthly	5.2	< 5.0	5.10	< 5.0	< 5.0	5.10	5.10	5.2	< 5.0	5.1	5.2	5.2
Oil and Grease (mg/L) Daily Maximum	10.5	< 5.0	7.8	< 5.0	< 5.0	8.6	5.8	9.0	< 5.0	7.1	7.5	7.8
Ammonia (lbs/day) Effluent Net Average Monthly	38	32	322	434	294	48	39	119	112	88	76	13

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
Ammonia (lbs/day) Effluent Net Daily Maximum	36	44	735	797	428	39	34	219	133	69	193	0
Ammonia (mg/L) Average Monthly	0.86	0.80	6.85	7.76	5.72	1.42	1.24	3.34	2.75	2.62	1.99	0.56
Ammonia (mg/L) Daily Maximum	1.32	1.68	15.50	18.0	9.99	1.89	2.09	7.59	3.72	2.84	4.81	0.82
Fluoride (lbs/day) Effluent Net Average Monthly	98	259	254	242	313	130	131	166	216	161	330	338
Fluoride (lbs/day) Effluent Net Daily Maximum	339	870	464	515	698	456	301	484	872	360	480	470
Fluoride (mg/L) Average Monthly	1.75	4.38	5.02	4.07	5.26	2.72	2.92	3.51	4.54	4.00	7.28	7.21
Fluoride (mg/L) Daily Maximum	5.60	15.5	9.06	9.70	10.90	9.25	6.77	9.61	18.0	9.25	10.10	11.0
Total Sulfide (lbs/day) Effluent Net Average Monthly	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Sulfide (lbs/day) Effluent Net Daily Maximum	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Sulfide (mg/L) Average Monthly	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Total Sulfide (mg/L) Daily Maximum	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Phenol (mg/L) Maximum	< 0.08	< 0.080	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Benzene (mg/L) Average Monthly	< 0.0003	< 0.0003	< 0.0003	< 0.0003	0.0027	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.001	< 0.001
Benzene (mg/L) Daily Maximum	< 0.0003	< 0.0003	< 0.0003	< 0.0003	0.0055	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.001	< 0.001
Total BTEX (mg/L) Average Monthly	< 0.0036	< 0.0036	< 0.0036	< 0.0036	0.0056	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036
Total BTEX (mg/L) Daily Maximum	< 0.0036	< 0.0036	< 0.0036	< 0.0036	0.0097	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036	< 0.0036
Naphthalene (mg/L) Average Monthly	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.004
Naphthalene (mg/L) Daily Maximum	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.004	< 0.004
Total Phenolics (lbs/day) Effluent Net Average Monthly	0.5	0.2	0.5	1.0	0.7	0.7	0.2	1.0	0.6	0.5	0.3	0.2

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
Total Phenolics (lbs/day) Effluent Net Daily Maximum	0.8	0.2	0.6	2.3	1.6	1.0	2.0	3.0	.03	0.6	0.6	0.2
Total Phenolics (mg/L) Average Monthly	0.012	0.010	0.017	0.022	0.024	0.018	0.013	0.04	0.021	0.013	0.01	0.005
Total Phenolics (mg/L) Daily Maximum	0.017	0.017	0.019	0.043	0.045	0.024	0.040	.14	0.075	0.022	0.02	0.009
TRO (mg/L) Average Monthly			< 0.05			0.07			0.07			
TRO (mg/L) Daily Maximum			< 0.05			0.09			0.12			
Total Phosphorus (mg/L) Average Monthly			0.99			0.93			0.42			
Total Phosphorus (mg/L) Daily Maximum			0.99			0.93			0.42			
Hexavalent Chromium (lbs/day) Effluent Net Average Monthly			0.000			0.000			0.000			
Hexavalent Chromium (lbs/day) Effluent Net Daily Maximum			0.000			0.000			0.000			
Hexavalent Chromium (mg/L) Average Monthly			< 0.010			< 0.010			< 0.010			
Hexavalent Chromium (mg/L) Daily Maximum			< 0.010			< 0.010			< 0.010			
Total Chromium (lbs/day) Effluent Net Average Monthly			0.000			0.000			0.000			
Total Chromium (lbs/day) Effluent Net Daily Maximum			0.000			0.000			0.000			
Total Chromium (mg/L) Average Monthly			< 0.010			< 0.010			< 0.010			

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
Total Chromium (mg/L) Daily Maximum			< 0.010			< 0.010			< 0.010			
Total Copper (mg/L) Average Monthly			< 0.02			0.18			< 0.02			
Total Copper (mg/L) Daily Maximum			< 0.02			0.18			< 0.02			
Total Lead (mg/L) Average Monthly			< 0.01			< 0.01			< 0.01			
Total Lead (mg/L) Daily Maximum			< 0.01			< 0.01			< 0.01			
Total Silver (mg/L) Average Monthly			< 0.01			< 0.01			< 0.01			
Total Silver (mg/L) Daily Maximum			< 0.01			< 0.01			< 0.01			
Total Zinc (mg/L) Average Monthly			< 0.04			< 0.02			0.035			
Total Zinc (mg/L) Daily Maximum			< 0.04			< 0.02			0.035			
1,2-Dichloroethane (mg/L) Average Monthly			< 0.001			< 0.001			< 0.001			
1,2-Dichloroethane (mg/L) Daily Maximum			< 0.001			< 0.001			< 0.001			
Tetrachloro-ethylene (mg/L) Average Monthly			< 0.001			< 0.001			< 0.001			
Tetrachloro-ethylene (mg/L) Daily Maximum			< 0.001			< 0.001			< 0.001			
Trichloroethylene (mg/L) Average Monthly			< 0.001			< 0.001			< 0.001			
Trichloroethylene (mg/L) Daily Maximum			< 0.001			< 0.001			< 0.001			
Acute WET (Ceriodaphnia) (TUa) Daily Maximum			1.00			1.00			1.00			
Chronic WET (Ceriodaphnia) (TUc) Daily Maximum			1.00			1			1.00			

Parameter	May 11	Jun 11	Jul 11	Aug 11	Sep 11	Oct 11	Nov 11	Dec 11	Jan 12	Feb 12	Mar 12	Apr 12
Acute WET (Pimephales) (TUa) Daily Maximum			1.00			1.00			1.00			
Chronic WET (Pimephales) (TUc) Daily Maximum			2.00			2			1.1			

Compliance History

Effluent Violations for Outfall 001 (from April 1, 2011 to March 31, 2012)

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
No violations to report						

Effluent Violations for Outfall 002 (from April 1, 2011 to March 31, 2012)

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Oil and Grease	08/31/11	IMAX	28.0	mg/L	15	mg/L

Effluent Violations for Outfall 004 (from April 1, 2011 to March 31, 2012)

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
No violations to report						

Effluent Violations for Outfall 005 (from April 1, 2011 to March 31, 2012)

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
No violations to report						

Effluent Violations for Outfall 009 (from April 1, 2011 to March 31, 2012)

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
BOD5	08/31/11	Avg Mo	193	mg/L	26.4	mg/L
BOD5	08/31/11	Daily Max	193	mg/L	48.0	mg/L
TSS	08/31/11	Avg Mo	72	mg/L	21.6	mg/L
TSS	08/31/11	Daily Max	72	mg/L	34.0	mg/L

Oil and Grease	08/31/11	Avg Mo	130	mg/L	8.0	mg/L
Oil and Grease	08/31/11	Daily Max	130	mg/L	15.6	mg/L
Total Phenolics	08/31/11	Avg Mo	13.0	mg/L	0.17	mg/L
Total Phenolics	08/31/11	Daily Max	13.0	mg/L	0.35	mg/L
COD	08/31/11	Avg Mo	645	mg/L	180	mg/L
COD	08/31/11	Daily Max	645	mg/L	360	mg/L
BOD5	08/31/11	Avg Mo	193	mg/L	26.4	mg/L
BOD5	08/31/11	Daily Max	193	mg/L	48.0	mg/L
TSS	08/31/11	Avg Mo	72	mg/L	21.6	mg/L
TSS	08/31/11	Daily Max	72	mg/L	34.0	mg/L
Oil and Grease	08/31/11	Avg Mo	130	mg/L	8.0	mg/L
Oil and Grease	08/31/11	Daily Max	130	mg/L	15.6	mg/L
Total Phenolics	08/31/11	Avg Mo	13.0	mg/L	0.17	mg/L
Total Phenolics	08/31/11	Daily Max	13.0	mg/L	0.35	mg/L
COD	08/31/11	Avg Mo	645	mg/L	180	mg/L
COD	08/31/11	Daily Max	645	mg/L	360	mg/L

Effluent Violations for Outfall 010 (from April 1, 2011 to March 31, 2012)

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
No violations to report						

Effluent Violations for Outfall 011 (from April 1, 2011 to March 31, 2012)

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
No violations to report						

Effluent Violations for Outfall 012 (from April 1, 2011 to March 31, 2012)

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
No violations to report						

Effluent Violations for Outfall 014 (from April 1, 2011 to March 31, 2012)

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
No violations to report						

Effluent Violations for Outfall 015 (from April 1, 2011 to March 31, 2012)

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Benzene	09/30/11	Avg Mo	0.0027	mg/L	0.001	mg/L
Benzene	09/30/11	Daily Max	0.0055	mg/L	0.002	mg/L
TSS	10/31/11	Daily Max	64	mg/L	35	mg/L
TSS	10/31/11	Daily Max	2482	lbs/day	2131	lbs/day
TSS	11/30/11	Daily Max	42	mg/L	35	mg/L
TSS	12/31/11	Daily Max	63	mg/L	35	mg/L
Total Dissolved Solids	12/31/11	Avg Mo	152805	lbs/day	151221	lbs/day
Total Dissolved Solids	12/31/11	Daily Max	4156	mg/L	4108	mg/L
TSS	02/29/12	Daily Max	58	mg/L	35	mg/L

Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	various
Latitude	39° 54' 35.29"	**Longitude**	75° 12' 34.49"

Wastewater Description: Process and contaminated stormwater.

Technology-Based Limitations:
Process water commingled with the storm water is getting discharged only during emergency (especially during a heavy storm event). Therefore, it is assumed that mostly contaminated storm water is being discharged through this outfall. Based on ELG 40 C.F.R. 419.52(e)2 BPT and ELG 40 C.F.R. 419.53(f)2 BAT; if contaminated runoff is commingled with the process wastewater, it may be discharged if the quantities of pollutants discharged shall not exceeds the quantities determined by multiplying the flow of contaminated runoffs times the concentrations listed in the following table. Therefore, the following effluent limitations for contaminated runoffs are applied to Outfall 001.

Parameter	Limit (mg/l)	SBC	Federal Regulation
pH (S.U.)	Within 6.0 - 9.0	At all times	ELG 40 C.F.R. 419.52(e)2 ELG 40 C.F.R. 419.53(f)2
BOD5	26.4	Average monthly	
Chemical Oxygen Demand	180	Average monthly	
Total Suspended Solids	21.6	Average monthly	
Oil and Grease **	8.0	Average monthly	
Hexavalent Chromium	0.028	Average monthly	
Total Chromium	0.22	Average monthly	
Total Phenolics	0.17	Average monthly	

Comments:
- Samples shall be collected immediately following start of the discharge and daily thereafter until discharge cease.
- If the concentration of Oil and Grease exceeds the values, the quality of pollutants discharged shall be calculated in accordance with following Requirement:

  If contaminated runoffs through Outfall 001 exceed 15 mg/l oil and grease, the quantity of pollutants discharged shall not exceed the quantity determined by multiplying the flow of contaminated runoff times the concentrations listed in the following table:

Parameter	30 Day Average lb./1,000 gal	Daily Maximum lb./1,000 gal
BOD_5	0.22	0.40
Total Suspended Solids	0.18	0.28
Chemical Oxygen Demand	1.5	3.0
Oil and Grease	0.067	0.13
Phenolic Compounds (4AAP)	0.0014	0.0029
Chromium, Total	0.0018	0.0050
Chromium, Hexavalent	0.00023	0.00052
pH	Within the range of 6.0-9.0 Standard Units	

Application stated: There has been no flow from this outfall in over five years.

Development of Effluent Limitations

Outfall No. 002 **Design Flow (MGD)** Various
Latitude 39° 54' 35.67" **Longitude** 75° 12' 41.40"
Wastewater Description: Emergency Overflow from Oil –Water Separator 3 of Contaminated Stormwater Runoffs

Technology-Based Limitations:
Based on the 40 C.F.R. 419.52(e) BPT, if wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, may be discharged if it does not exceeds 15 mg/l oil and grease and 110 mg/l total organic carbon (TOC) based upon an analysis of any single grab or composite sample.

There are no WQ criteria for TOC, and Chapter 97 requires oil-bearing waste has to meet 15 mg/l daily average limits. DRBC has similar requirements for oil-bearing waste. Therefore, an existing limit for the outfall 002 has been carried over in this renewal.

Therefore, the following effluent limitations for contaminated runoffs are applied to Outfall 002.

Parameter	Limit (mg/l)	SBC	Federal Regulation
pH (S.U.)	Within 6.0 - 9.0	At all times	ELG 40 C.F.R. 419.52(e)2 ELG 40 C.F.R. 419.53(f)2
Total Organic Carbon *	110	IMAX	
Oil and Grease *	15	IMAX	

Comments: If the concentration of Oil and Grease exceeds the values, the quality of pollutants discharged shall be calculated in accordance with following Requirement of Part C of the permit:

If contaminated runoffs through Outfall 001, 002, 009 and 014 exceed 15 mg/l oil and grease, the quantity of pollutants discharged shall not exceed the quantity determined by multiplying the flow of contaminated runoff times the concentrations listed in the following table:

Parameter	***30 Day Average lb./1,000 gal***	***Daily Maximum lb./1,000 gal***
BOD_5	*0.22*	*0.40*
Total Suspended Solids	*0.18*	*0.28*
Chemical Oxygen Demand	*1.5*	*3.0*
Oil and Grease	*0.067*	*0.13*
Phenolic Compounds (4AAP)	*0.0014*	*0.0029*
Chromium, Total	*0.0018*	*0.0050*
Chromium, Hexavalent	*0.00023*	*0.00052*
pH	*Within the range of 6.0-9.0 Standard Units*	

Development of Effluent Limitations

Outfall No. 004 **Design Flow (MGD)** 1.3
Latitude 39° 54' 20.00" **Longitude** 75° 12' 53.00"
Wastewater Description: Non-contact cooling water from Scaiffe and Elliot Air Compressors

Technology-Based Limitations

The Outfall 004 receives 1.3 MGD of NCCW from Scaiffe and Elliot Air Compressors, No chemical additives are used for these outfalls. This wastewater is eligible for 40 C.F.R. 419.52 (d) - BPT. As per regulations: Once-through cooling water may be discharged with Total Organic Carbon (TOC) concentration not to exceed 5 mg/l. Also, this is heated waste; therefore, temperature limits are also applied as per DRBC Zone 4 requirements. Part C of the permit will have special requirements with the respect to the thermal impact of the discharge from Outfall 004 as following:

> *In accordance with the net-total organic carbon (TOC) limits for Outfalls 004 and 011, the intake water withdrawn from the Schuylkill River Zone 4 shall be monitored once a week using a grab sample for TOC.*

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
pH (S.U.)	6.0 – 9.0	At all times		Chapter 93.7
Total Organic Carbon Effluent Net	5	IMAX	40 C.F.R. 419.52 (d)	
Temperature (^{0}C)	110	IMAX	DRBC Zone 4 Req.	

The DRBC's docket No. D-1969-115-3 includes additional parameters to monitor and listed below:

Parameter	Limit (mg/l)	SBC	Federal Regulation	Reporting Frequency
TSS	Report	Daily Max	DRBC	Monthly
$CBOD_5$	Report	Daily Max	DRBC	Monthly
Ammonia Nitrogen	Report	Daily Max	DRBC	Monthly
Total Dissolve Solids	Report	Daily max	DRBC	Monthly

Therefore, final effluent monitoring requirements for Outfall 004 will be included in Part A of the permit as following:

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)			Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	1/week	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	1/week	Grab
Temperature (°F)	XXX	XXX	XXX	XXX	110	1/week	I-S
Total Organic Carbon Effluent Net	XXX	XXX	XXX	XXX	5.0	1/week	Grab
TSS	XXX	XXX	XXX	Report	Report	1/month	Grab
$CBOD_5$	XXX	XXX	XXX	Report	Report	1/month	Grab
Ammonia Nitrogen	XXX	XXX	XXX	Report	Report	1/month	Grab
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	1/month	Grab

Development of Effluent Limitations

Outfall No. 005 **Design Flow (MGD)** Various
Latitude 39° 54' 19.70" **Longitude** 75° 12' 51.76"
Wastewater Description: Stormwater runoffs from roof drains

Monitoring as per Discharges of Stormwater from Industrial activities has remained for this outfall:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
pH	Monitor/Report	Average Annual	40 CFR 122.26(b)(14)	Title 25 PA Code §§92a.54 and 92a.84
CBOD5	Monitor/Report	Average Annual		
TSS	Monitor/Report	Average Annual		
COD	Monitor/Report	Average Annual		
Oil and Grease	Monitor/Report	Average Annual		
Total Kjeldahl Nitrogen	Monitor/Report	Average Annual		
Total Phosphorus	Monitor/Report	Average Annual		
Iron (Dissolved)	Monitor/Report	Average Annual		

Development of Effluent Limitations

Outfall No. 009 **Design Flow (MGD)** various
Latitude 39° 54' 4.74" **Longitude** 75° 12' 47.56"
Wastewater Description: Emergency Overflow of #2B Separator of process wastewater

Process water commingled with the storm water is getting discharged only during emergency (especially during a heavy storm event). Therefore, it is assumed that mostly contaminated storm water is being discharged through this outfall. Based on ELG 40 C.F.R. 419.52(e)2 BPT and ELG 40 C.F.R. 419.53(f)2 BAT; if contaminated runoff is commingled with the process wastewater, it may be discharged if the quantities of pollutants discharged shall not exceeds the quantities determined by multiplying the flow of contaminated runoffs times the concentrations listed in the following table.

Therefore, the following effluent limitations for contaminated runoffs are applied to Outfall 009.

Parameter	Limit (mg/l)	SBC	Federal Regulation
pH (S.U.)	Within 6.0 - 9.0	At all times	ELG 40 C.F.R. 419.52(e)2 ELG 40 C.F.R. 419.53(f)2
BOD5	26.4	Average monthly	
Chemical Oxygen Demand	180	Average monthly	
Total Suspended Solids	21.6	Average monthly	
Oil and Grease *	8.0	Average monthly	
Hexavalent Chromium	0.028	Average monthly	
Total Chromium	0.22	Average monthly	
Total Phenolics	0.17	Average monthly	

Comments: *If the concentration of Oil and Grease exceeds the values, the quality of pollutants discharged shall be calculated in accordance with following Requirement of Part C of the permit:

If contaminated runoffs through Outfall 001, 002, 009 and 014 exceed 15 mg/l oil and grease, the quantity of pollutants discharged shall not exceed the quantity determined by multiplying the flow of contaminated runoff times the concentrations listed in the following table:

Parameter	***30 Day Average lb./1,000 gal***	***Daily Maximum lb./1,000 gal***
BOD_5	*0.22*	*0.40*
Total Suspended Solids	*0.18*	*0.28*
Chemical Oxygen Demand	*1.5*	*3.0*

Oil and Grease	*0.067*	*0.13*
Phenolic Compounds (4AAP)	*0.0014*	*0.0029*
Chromium, Total	*0.0018*	*0.0050*
Chromium, Hexavalent	*0.00023*	*0.00052*
pH	*Within the range of 6.0-9.0 Standard Units*	

Development of Effluent Limitations

Outfall No. 010 **Design Flow (MGD)** various
Latitude 39° 53' 42.05" **Longitude** 75° 12' 10.27"
Wastewater Description: Stormwater runoffs from roof drains

Monitoring as per PAG-03, Discharges of Stormwater from Industrial activities (Appendix J), has been included for this outfall:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
pH	Monitor/Report	Average Annual	40 CFR 122.26(b)(14)	Title 25 PA Code §§92a.54 and 92a.84
CBOD5	Monitor/Report	Average Annual		
TSS	Monitor/Report	Average Annual		
COD	Monitor/Report	Average Annual		
Oil and Grease	Monitor/Report	Average Annual		
Total Kjeldahl Nitrogen	Monitor/Report	Average Annual		
Total Phosphorus	Monitor/Report	Average Annual		
Iron (Dissolved)	Monitor/Report	Average Annual		

Development of Effluent Limitations

Outfall No. 011 **Design Flow (MGD)** 1.2
Latitude 39° 54' 4.32" **Longitude** 75° 12' 47.28"
Wastewater Description: Non-contact cooling water from Blue Bird Air Compressor

The Outfall 011 receives 1.2 MGD of NCCW from Blue Bird Air Compressor. No chemical additives are used for this outfall. This wastewater is eligible for 40 C.F.R. 419.52 (d) - BPT. As per regulations: Once-through cooling water may be discharged with Total Organic Carbon (TOC) concentration not to exceed 5 mg/l. Also, this is heated waste; therefore, temperature limits are also applied as per DRBC Zone 4 requirements. Part C of the permit will have special requirements with the respect to the thermal impact of the discharge from Outfall 011 as following:

In accordance with the net-total organic carbon (TOC) limits for Outfalls 004 and 011, the intake water withdrawn from the Schuylkill River Zone 4 shall be monitored once a week using a grab sample for TOC.

Therefore, the following effluent limitations

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
pH (S.U.)	6.0 – 9.0	At all times		Chapter 93.7
Total Organic Carbon *	5	IMAX	40 C.F.R. 419.52 (d)	
Temperature (^{0}C)	110	IMAX	DRBC Zone 4 Req.	

The DRBC's docket No. D-1969-115-3 includes additional parameters to monitor and listed below:

Parameter	Limit (mg/l)	SBC	Federal Regulation	Reporting Frequency
TSS	Report	Daily Max	DRBC	Monthly
$CBOD_5$	Report	Daily Max	DRBC	Monthly
Ammonia Nitrogen	Report	Daily Max	DRBC	Monthly
Total Dissolve Solids	Report	Daily max	DRBC	Monthly

Therefore, final effluent monitoring requirements for Outfall 011 will be included in Part A of the permit as following:

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)			Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	1/week	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	1/week	Grab
Temperature (°F)	XXX	XXX	XXX	XXX	110	1/week	I-S
Total Organic Carbon Effluent Net	XXX	XXX	XXX	XXX	5.0	1/week	Grab
TSS	XXX	XXX	XXX	Report	Report	1/month	Grab
$CBOD_5$	XXX	XXX	XXX	Report	Report	1/month	Grab
Ammonia Nitrogen	XXX	XXX	XXX	Report	Report	1/month	Grab
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	1/month	Grab

Development of Effluent Limitations

Outfall No. 012 **Design Flow (MGD)** various
Latitude 39° 53' 41.00" **Longitude** 75° 12' 9.00"
Wastewater Description: Stormwater runoffs from roof drains

Monitoring as per PAG-03, Discharges of Stormwater from Industrial activities (Appendix J), has been included for this outfall:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
pH	Monitor/Report	Average Annual	40 CFR 122.26(b)(14)	Title 25 PA Code §§92a.54 and 92a.84
CBOD5	Monitor/Report	Average Annual		
TSS	Monitor/Report	Average Annual		
COD	Monitor/Report	Average Annual		
Oil and Grease	Monitor/Report	Average Annual		
Total Kjeldahl Nitrogen	Monitor/Report	Average Annual		
Total Phosphorus	Monitor/Report	Average Annual		
Iron (Dissolved)	Monitor/Report	Average Annual		

Development of Effluent Limitations

Outfall No. 014 **Design Flow (MGD)** 2.448
Latitude 39° 53' 48.57" **Longitude** 75° 12' 31.22"
Wastewater Description: Contaminated stormwater

Technology-Based Limitations:
Based on the 40 C.F.R. 419.52(e) BPT, if wastewater consists solely of contaminated runoff and is not commingled or treated with process wastewater, may be discharged if it does not exceeds 15 mg/l oil and grease and 110 mg/l total organic carbon (TOC) based upon an analysis of any single grab or composite sample.

There are no WQ criteria for TOC, and Chapter 97 requires oil-bearing waste has to meet 15 mg/l daily average limits. DRBC has similar requirements for oil-bearing waste. Therefore, an existing limit for the outfall 014 has been carried over in this renewal.

Therefore, the following effluent limitations for contaminated runoffs are applied to Outfall 014.

Parameter	Limit (mg/l)	SBC	Federal Regulation
pH (S.U.)	Within 6.0 - 9.0	At all times	ELG 40 C.F.R. 419.52(e)1
Total Organic Carbon **	110	Average monthly	
Oil and Grease **	15	Average monthly	

** Comments: If the concentration of Oil and Grease exceeds the values, the quality of pollutants discharged shall be calculated in accordance with following Requirement of Part C of the permit:

If contaminated runoffs through Outfall 001, 002, 009 and 014 exceed 15 mg/l oil and grease, the quantity of pollutants discharged shall not exceed the quantity determined by multiplying the flow of contaminated runoff times the concentrations listed in the following table:

Parameter	***30 Day Average lb./1,000 gal***	***Daily Maximum lb./1,000 gal***
BOD_5	*0.22*	*0.40*
Total Suspended Solids	*0.18*	*0.28*
Chemical Oxygen Demand	*1.5*	*3.0*
Oil and Grease	*0.067*	*0.13*
Phenolic Compounds (4AAP)	*0.0014*	*0.0029*
Chromium, Total	*0.0018*	*0.0050*
Chromium, Hexavalent	*0.00023*	*0.00052*
pH	*Within the range of 6.0-9.0 Standard Units*	

Development of Effluent Limitations

Outfall No.	**015**	**Design Flow (MGD)**	6.22
Latitude	39° 54' 22.39"	**Longitude**	75° 12' 52.10"

Wastewater Description: Treated Wastewater from Girard Point Wastewater Treatment Plant

The industrial wastewater treatment plant (IWWTP) receives the following wastewater streams for treatment prior to discharge to outfall 015:

- process water from crude unit, fluid catalytic cracking unit, HF alkylation, sulfur unit isomerization unit
- tank water draw (fraction) via #4 separator
- process water from catalytic refining, aromatic extraction, cumene unit/ hydrotreating,
- tank process water draw, boiler's cooling towers blowdown, steam condensate and groundwater remediation wastewater and boiler blowdown via #2 separator.
- collected by vacuum trucks oily wastewater similar in characteristics to typical refinery wastewater that is generated within Philadelphia Refining Complex (includes Girard Point and Point Breeze Processing Areas): tank or vessel cleanout rinsates, process sewer system cleanouts, stormwater system maintenance and cleanouts, oil/water separation system maintenance cleanouts, spill cleanup residue and related rinsates, filtrates from dewatering sludge from tank cleanings, waste materials that cannot be completed purged or drained from process equipment or piping prior to maintenance, stormwater that accumulates in containment dikes or basins, off-specification material that cannot be returned to the processing units, and/or remediation wastes (including groundwater well development and purge wastewaters from other remediation system activities).
-

A 6.22 MGD five year average flow of treated wastewater is being discharged through this outfall (maximum daily discharge rate is 11.24 MGD). The refinery is processing crude oil by cracking process, which has ELGs per 40 C.F.R. Part 419, Subpart E: Integrated Subcategory. The facility is withdrawing approximately 13.4 GPM water from the Delaware River. Out of these, 4.6 GPM is used for NCCW and is discharged directly to river via Outfalls 004 and 011. The remaining water is used in their boiler house, process and cooling towers and getting treated at IWWTP. Approximately 5.7 MGD of water is used in the cooling towers. About 3.0 MGD is evaporated in the air and remaining 2.7 MGD will be discharged into O/W separator No. 4, which ultimately gets treated in the IWWTP before discharged to the river through Outfall 015. Approximately 3.09 MGD of treated water from IWWTP is used in the boilers for the production of steam. Approximately 0.27 MGD is being discharged from the boilers as blow down into O/W separator No.2B, and 0.625 MGD from new wet gas scrubbing system which ultimately gets treated at the IWWTP before discharged to the river via Outfall 015.

Over the last 2 years this facility is operating with various exceedences of their NPDES requirements. Following listed comments were taken from DMRs submitted by Girard Point to PA DEP from May 2009 to May 2012.

- During the month of May, 2009, one of the two Oxidation Tanks was removed from service due to mechanical failure of the air diffuser system. This action doubled the flow to the remaining Oxidation Tank causing a low dissolved oxygen environment causing the flock to break apart. This allowed a high TSS condition to exist until Sunoco was able to install an additional oxygen source to the remaining oxidation tank thereby correcting the situation. Sunoco is repairing the out of service tank.
- There was one exceedence of permit limitations during the month of June 2009. On 6/30/09 a sample result of 38 mg/l TSS was above the daily max limit of 35 mg/l. Additionally, due to a contract laboratory methodology error, only one BOD20 sample result is included in June's data rather than the required two. This methodology error has been corrected.
- There was one exceedence for TSS concentration during the month of September 2009. This exceedence was caused by excessive foaming on the oxidation tanks.
- There were 3 exceedences of permit limitations during the month of January 2010. The Girard Point WWTP experienced an upset including severe foaming during the period Jan 26 thru Jan 29. The WWTP experienced 2 concentration limit exceedences and 1 mass limit exceedence during this period. The WWTP met all TSS limits on Jan 30.
- There were 3 exceedences of permit limitations during the month of April 2010. On April 1st there was an upset at the WWTP which was a continuation of the upset from the end of March 2010. This caused an O&G exceedence

of the daily max concentration limit. Additionally, on April 13th 2010, an upset at the WWTP caused 2 exceedences. The TSS daily max concentration and the daily mass limit were exceeded.

- There were 6 exceedences of permit limitations during the month of June 2010 as follows: TSS - 1 monthly average concentration exceedence - 2 daily max concentration exceedences - 1 daily max mass loading exceedence O&G -1 monthly average concentration exceedence -1 daily max concentration exceedence
- There were a total of 18 exceedences of permit limits during the month of September 2010 due to continuing upset conditions at the Girard Point WWTP.
- There were 30 exceedences of permit limitations during the month of October, 2010 due to continued upset conditions at the WWTP.
- There were 16 exceedences of permit limits during the month of November 2010 due to continued upset conditions at the WWTP.
- There were 2 exceedences of permit limitations during the month of December 2010 due to a WWTP upset.
- There were 4 exceedences of permit limits during the month of February 2011. The BOD5-day percent removal was 84.59 % which is below the minimum limit of 89.25 % removal. However, the influent concentration was <100 mg/l and the effluent concentration was <10 mg/l which per permit language is considered in compliance with this condition.
- There were 7 exceedences of permit limits during the month of March 2011.
- There were 12 exceedences of permit limits during the month of August 2011. Additionally, the exceedence of the O&G concentration limit for 2 daily max concentrations at Outfall # 002 triggers additional parameter analysis. Due to Laboratory and Operations procedural errors, these additional analyses were not performed. Procedures have been updated to prevent reoccurrences of this type.
- There were 4 exceedences of Benzene limits during the month of September 2011. The daily max concentration was exceeded 3 days and the monthly average concentration was exceeded.
- There were two exceedences of permit limits during the month of October 2011.
- There was one exceedence of permit limits for TSS concentration on November 2011.
- There were 5 exceedences of TSS concentration limits and one exceedence of TDS concentration limits on December 2011.
- There was 1 exceedence of permit limitations for TSS daily max concentration during the month of February 2012.
- There was 1 TSS concentration exceedence during the month of March 2012 due to WWTP plant upset

The IWWTP consists of Oil & Grease removal, Grit Removal, and Dissolved Air Flotation and Clarifiers. This is an existing treatment, therefore, per 40 C.F.R. 419, Part E applicable BAT, BCT, and BPT applied based on their five years of average production. Their production data are as follows:

Year	Production (MMbls/day)
2005	190.675
2006	183.664
2007	203.100
2008	183.292
2009	165.233
Last five (5) year Average:	185.193

Therefore, the average of the last five years is equal to 185,193 bbls/day. This production data is used for calculating effluent limits. Also, based on this production, the following **size factors**, weight factor and process factor are used:

For Integrated Subcategory (Subpart E) = 0.91 40 C.F.R.419.52 (b)(1)

Also, the following Process Configuration factors are calculated for various processes based on their process type and corresponding production output from that process. They are:

Process Utilized	Capacity (1,000 bbl/stream day)	Capacity Relative to Throughput	419.42(b)(3) Weighting Factor	Process Configuration
Crude:				
Atmospheric Crude Distillation Crude	173.0	1.0		
Desalting	173.0	1.0	1	2.5
Vacuum Crude Distillation	86.8	86.8/173		
		0.5		
Subtotal:	**432.8**	**2.5**		
Cracking and Coking:				
Fluid Catalytic Cracking	69.0	0.4		
Hydrocracker	not in use		6	4.2
Hydrogen Desulfurization	52.7	0.3		
Subtotal:	**121.7**	**0.7**		
Reforming& Alkylation:				
Catalytic Reforming	25.7	0.15		
HF Alkylation	16.0	0.09	0	0
Isomeration	5.7	0.03		
Subtotal:	**47.4**	**0.27**		

Refinery Process Configuration (sum of all above) = 6.7
Therefore, Process Factor per 40 C.F.R. Part 419.52(b)(2) = 0.82

Technology-Based Effluent Limitations:

Applicable regulations are 40 C.F.R. 419.52(a) – BPT; 40 C.F.R. 419.53(a) – BAT and 40 C.F.R. 419.54(a) - BCT

BPT Limit Calculations per 40 C.F.R. 419.52(a):

Parameter	Effluent Limits (lb/1,000 bbls)		Size Factor	Process Factor	Feedstock Rate (1,000 bbl/day)	Effluent Limits (lbs/day)	
	Ave. Month	Max. Daily				Ave. Month	Max. Daily
BOD5	10.2	19.2	0.91	0.82	185.2	1409.60	2653.37
TSS	8.4	13.2	0.91	0.82	185.2	1160.85	1824.19
COD	70	136	0.91	0.82	185.2	9673.74	18794.69
Oil and Grease	3.2	6	0.91	0.82	185.2	442.23	829.18
Phenolic Compounds	0.068	0.14	0.91	0.82	185.2	9.4	19.35
Ammonia as N	3.8	8.3	0.91	0.82	185.2	525.15	1147.03
Sulfide	0.056	0.124	0.91	0.82	185.2	7.74	17.14
Total Chromium	0.17	0.29	0.91	0.82	185.2	23.49	40.08
Hex. Chromium	0.011	0.025	0.91	0.82	185.2	1.52	3.45

BAT Limit Calculations per 40 C.F.R. 419.53(a):

Parameter	Effluent Limits (lb/1,000 bbls)		Size Factor	Process Factor	Feedstock Rate (1,000 bbl/day)	Effluent Limits (lbs/day)	
	Ave. Month	Max. Daily				Ave. Month	Daily Max.
COD	70	136	0.91	0.82	185.2	9673.74	18794.69
Ammonia as N	3.8	8.3	0.91	0.82	185.2	525.15	1147.03
Sulfide	0.056	0.124	0.91	0.82	185.2	7.74	17.14

In addition to above, the discharge must achieve the following effluent limitations:

	Feed Stock	Phenolics Compounds (lbs/day)	Total Chromium (lbs/day)	Hex. Chromium (lbs/day)

Process	Rate (1,000 bbls/day)	BAT Limitation Factor		Calculated Effluent Limits		BAT Limitation Factor		Calculated Effluent Limits		BAT Limitation Factor		Calculated Effluent Limits	
		Ave. Month	Daily Max.	Ave. Month	Daily Max	Ave. Mon	Daily Max.	Ave. Mon	Daily Max.	Ave. Month	Daily Max.	Ave. Month	Daily Max.
Crude	432.8	0.003	0.013	1.30	5.63	0.004	0.011	1.73	4.76	0.0003	0.0007	0.13	0.30
Cracking & Coking	121.7	0.036	0.147	4.38	17.89	0.041	0.119	4.99	14.48	0.0034	0.0076	0.41	0.92
Reforming & Alkylation	47.4	0.032	0.132	1.52	6.26	0.037	0.107	1.75	5.07	0.0031	0.0069	0.15	0.33
Total				**7.20**	**29.78**			**8.47**	**24.31**			**0.69**	**1.55**

Therefore, BAT Limitations are as follows:

Parameter	Effluent Limits (lbs/day)	
	Ave. Month	Max. Daily
COD	9673.74	18794.69
Ammonia as N	525.15	1147.03
Sulfide	7.74	17.14
Phenolics Compounds	7.20	29.78
Total Chromium	8.47	24.31
Hex. Chromium	0.69	1.55

BCT Limit Calculations per 40 C.F.R. 419.54(a):

Parameter	Effluent Limits (lb/1,000 bbls)		Size Factor	Process Factor	Feedstock Rate (1,000 bbl/day)	Effluent Limits (lbs/day)	
	Ave. Month	Max. Daily				Ave. Month	Max. Daily
BOD5	10.2	19.2	0.91	0.82	185.2	1409.60	2653.37
TSS	8.4	13.2	0.91	0.82	185.2	1160.85	1824.19
Oil and Grease	3.2	6.0	0.91	0.82	185.2	442.23	829.18

Therefore, final Technology Based Effluent Limitations will be the stringent of BPT/BAT/BCT:

Parameter	Effluent Limits (lbs/day) (BPT)		Effluent Limits (lbs/day) (BAT)		Effluent Limits (lbs/day) (BCT)		Effluent Limits (lbs/day) FINAL TECH LIMITS	
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
BOD5	1409.60	2653.37			1409.60	2653.37	**1409.6**	**2653.4**
TSS	1160.85	1824.19			1160.85	1824.19	**1160.8**	**1824.2**
COD	9673.74	18794.69	9673.74	18794.69			**9673.7**	**18794.7**
Oil & Grease	442.23	829.18			442.23	829.18	**442.2**	**829.2**
Phenolic Compounds	9.4	19.35	7.20	29.78			**7.2**	**19.4**
Ammonia as N	525.15	1147.03	525.15	1147.03			**525.15**	**1147.03**
Sulfide	7.74	17.14	7.74	17.14			**7.7**	**17.1**
Total Chromium	23.49	40.08	8.47	24.31			**8.5**	**24.3**
Hex. Chromium	1.52	3.45	0.69	1.55			**0.7**	**1.6**
pH	**WITHIN LIMITS OF 6.0 TO 9.0 STD AT ALL TIMES**							

WATER QUALITY BASED EFFLUENT LIMITATIONS:

Since the project is located in the Delaware River Basin, DRBC's requirements as well as WQBELs are also applicable to this facility:

Parameter	Reported Values (mg/l) (Effluent)		Water Quality Based Effluent Limits (mg/l)						Basis
	Long Term	Max. Daily	Average Mo.		Daily Max.		Inst. Max.		
			Conc. (mg/l)	Mass (lbs/day)	Conc. (mg/l)	Mass (lbs/day)	Conc. (mg/l)	Mass (lbs/day)	
BOD5	7.09	47.0	30		60		75		DEP
TSS	15.02	78.0	100				250		DRBC 3.10.4.D.a.2
Oil and Grease	3.87	36.0	15		30		30		Chapter 97
$CBOD_{20}$						2170			DRBC
$CBOD_{20}$ % (percent Removal)			89.25 percent based on DRBC Zone 4 Requirements						DRBC for Zone 4
pH	6.0	8.1	Within limits of 6.0 to 9.0 STD units at all times						DRBC
TDS	2,205	3,062	2,760		3,720		4200		DRBC
Ammonia as N	2.14	6.1	35				70		DRBC
Temperature winter °F	82.4	99.7	Shall not exceed 5° F above average 24-hour temperature displayed during the 1961-1966 period						DRBC
Temperature summer °F	97.2	106.9							
COD	75.65	470	N/A	N/A	N/A	N/A	N/A	N/A	No WQ Criteria
TOC	18.87	21.8	N/A	N/A	N/A	N/A	N/A	N/A	No WQ Criteria
Sulfide	0.03	0.08	N/A	N/A	N/A	N/A	N/A	N/A	No WQ Criteria
Total Residual Oxidants	0.00004	0.00004	N/A	N/A	N/A	N/A	N/A	N/A	No WQ Criteria
Phosphorus, Total	0.29	0.39	N/A	N/A	N/A	N/A	N/A	N/A	No WQ Criteria
Phenol	0.077	0.08	Report		0.5		0.5		DRBC
Chromium, Total	0.0027	0.0042	1.97		3.94		4.9		Chapter 93.8c. (see below calculations)
Chromium, Hex	0.0080	0.010	0.266		0.532		0.665		
Thallium	0.014	0.014	0.006		0.012		0.15		
Lead	0.26	0.040	0.066		0.132		0.165		
Benzidine	0.019	0.019	0.000008		0.000016		0.00002		
Hexachlorobenzene	0.001	0.001	0.00003		0.00006		0.00007		
N-Nitrosodi-Methyl Amine	0.0004	0.0004	0.00007		0.00014		0.000175		

REASONABLE POTENTIAL EVALUATION FOR POLLUTANTS OF CONCERN

Reasonable Potential Evaluation of pollutants of concern was performed. Based on the evaluation effluent limits were determined. They are summarized in the spreadsheet attached to this fact sheet:

Reasonable Potential Evaluation Sheet

Since the Girard Point's discharge is to tidal portion of the Schuylkill River, the determination of effluent limits (Cd) is based on following Mass Balance Equation:

$$Q_{bk} \times C_{bk} + Q_d \times C_d = (Q_{bk(1/2/3)} + Q_d) * C_g$$

Where,

Q_{bk}- background stream flow (Q_{bk1}= 159 MGD – aquatic life (chronic*);
Q_{bk2}= 83 MGD – aquatic life (acute**)
Q_{bk3} =583 MGD – human health***);

Q_d – Point source discharge rate
C_g – Stream goal concentration
C_g - in-stream concentrations downstream of discharge

*** For Aquatic Life – Chronic**

Q7-10 of Schuylkill River is based on DRBC's docket No. D-1969-115-3 for Girard Point Processing Area's discharge and it is 246 cfs, equates to 159 MGD and based on USGS data from 1980s.

DRBC have provided Q_{7-10} flow as 108 cfs previously (email from Mr. Suk Namsoo is attached). This flow based on data from 1933 to 2011. The flow needed to be corrected since the Fairmount Dam was constructed within this period of time in 1980. The discharge is below the Fairmount Dam. The correct flow is 246 cfs is taken as a base all chronic calculations.

Therefore, following was used for effluent limits calculations:

(159* 0) + (6.22 x Cd) = (6.22 + 159) * Cg (for Chronic)
6.22 x Cd = 165.22 x Cg
Cd = 26.56 Cg

The multiplier 26.6 is used for limits calculations at the Reasonable Potential Evaluation Sheet (see column Limit 1).

**** For Aquatic Life – Acute**

Girard Point (GP) Processing Area's discharge is located near Point Breeze (PB) Processing Area's discharge (below the PB discharge). Both facilities have similar operations; therefore flow available for acute dilution will be prorated based on their discharge flow. Taking in consideration that these facilities are involved in withdrawing water (GP – 12.2 MGD and PB - 4.3 MGD) for their boilers following calculations used:

a) Flow available for Girard Point is calculated as following:
Total Flow (159 MGD) – PB Withdrawal of 4.3 MGD + PB Discharge flow of 4.91 MGD – GP withdrawal flow of 12.2 MGD = 147.41 MGD

b) Total flow from both facilities = 4.91 MGD + 6.22 MGD = 11.13 MGD

c) Percentage of available for dilution:

For GP – 6.22/11.13 = 0.56 = 56%
For PB – 4.91/11.13 = 0.44 = 44%

d) The flow available for acute dilution:

Girard Point Processing Area: 0.56 x 147.41 = 82.55 MGD ~ 83 MGD
Point Breeze Processing Area: 0.44 x 147.41 = 64.86 MGD ~ 65 MGD (will be used for Point Breeze)

Therefore, following was used for effluent limits calculations:

(83 x 0) + (6.22 x Cd) = (6.22 + 83) x Cg (for Acute)
6.22 x Cd = 89.22 x Cg
Cd = 14.27 C_g ~ 14.3 Cg

The multiplier 14.3 is used for limits calculations at the Reasonable Potential Evaluation Sheet (see column Limit 2).

***** For Human Health Protection:**

The calculations of the parameters of concern for human health protection two different flows are used:

1. Parameters with Threshold effect human Health criterion (Odor and Taste): Q_{7-10} of 159 MGD is used.

Therefore, following was used for effluent limits calculations:

(159 x 0) + (6.22 x Cd) = (6.22 + 159) x Cg (for Human Health – Odor and Taste)
6.22 x Cd = 165.22 x Cg
Cd = 26.56 Cg

The multiplier 26.6 is used for limits calculations at the Reasonable Potential Evaluation Sheet (see column Limit3).

2. Parameters with Cancer Risk Level (CRL) Harmonic mean flow is used.
Harmonic mean flow of Schuylkill River is provided by DRBC as 904 cfs, equates to 583 MGD and based on USGS data.

Therefore, following was used for effluent limits calculations:

(583 x 0) + (6.22 x Cd) = (6.22 + 583) x Cg (for Human Health - CRL)
6.22 x Cd = 589.22 x Cg
Cd = 94.7 Cg

The multiplier 94.7 is used for limits calculations at the Reasonable Potential Evaluation Sheet (see column Limit4).

After issuance of the first draft appeared in PA Bulletin on February 11, 2012, Sunoco had performed additional sampling of the effluent for parameters of concern included in the proposed draft permit using more sensitive method.

Based on revised Q7-10 flow of receiving stream Department has performed reasonable potential evaluation as following:

The following five parameters (three organic and two metals) were observed to have reasonable potential.

The process of such determination is explained in detail below.

(a) Based on the DEP guidance following flow rates are used for various water quality criteria.

Parameters	Water Quality Criteria (ppb).			
	Chronic	Acute	Human Health Taste & Odor	Human Health Cancer Risk
Lead	2.5	65	n/a	n/a
Thallium	13	65	0.24	n/a
Benzidine	59	300	n/a	0.000086
Hexachlorobenzene	n/a	n/a	n/a	0.00028
N-Nitrosodi-methylamine	3400	17000	n/a	0.00069
Flow to be used	159 MGD	83 MGD	159 MGD	583 MGD

(b) WQBEL – calculated using the most stringent criterion and the corresponding flow. This is shown below:

Parameters	Criteria	Used Flow	Calculated limit	Reported concentration
	(ppb)	(MGD)	(ppb)	
Lead	2.5	159	66.4	260
Thallium	0.24	159	6.38	14
Benzidine	0.000086	583	0.008	0.665
Hexachlorobenzene	0.00028	583	0.027	0.251
N-Nitrosodi-methylamine	0.00069	583	0.065	0.347

(c) Reasonable potential determination: Using DEP guidance on reasonable potential the following observed:

Parameters	Limit ppb	Level ppb	Recommendations
Lead	66.4	260	Level is over 50% of limit. Use numerical limit in the permit.
Thallium	6.38	14	Level is over 50% of limit. Use numerical limit in the permit. However, being a new parameter consider monitor only.
Benzidine	0.008	0.66	Same as Thallium for this permit term.
Hexachlorobenzene	0.027	0.25	Same as Thallium for this permit term.
N-Nitrosodi-methylamine	0.065	0.347	Same as Thallium for this permit term.

(d) Test Method and MDL: The following table shows the test methods used and the test methods available which are more sensitive than the methods used. (Shown only for organics)

Parameters	Test Method used		More sensitive method	
	Name	Sensitivity (ppb)	Name	Sensitivity (ppb)
Benzidine	625 E	0.665	625 GC/MS	44
Hexachlorobenzene	625 E	0.251	612 GC/ECD	0.05
N-Nitrosodi-methylamine	625 E	0.347	607 GCN-PD	0.15

On August 29, 2012 Sunoco has provided new results for Thallium. The reported value were <0.2 ug/l which is below WQB limits of 6.38 ug/l, however one analysis report cannot assure that the pollutant concentration will remain below MDL.

Therefore:

Benzidine, Hexachlorobenzene, N-Nitrosodimethylamine and Thallium are included in Part A of the permit to monitor and report. After sufficient amount of results of monitoring (1 year) the permittee can request reevaluation reasonable potential of the these parameters.

Effluent limits for **Total Lead** will remain in the permit as following:
0.066 mg/l as ave. monthly, 0.13 mg/l as daily max. and 0.13 mg/l as IMAX.

Phenol 26.6 x 0.02 = 0.5 mg/l (DRBC's aquatic life chronic criteria as per WQR 3.30.4C.4 Phenol - 0.02 mg/l)

Benzene, Naphthalene and Total BETX.
The ingredients for chemical additives: EXCAL7511 and EXCAL7551 are Benzene and Naphthalene. These additives are acids and usage rates are approved as requested, however, to control the impact of these additives on the receiving stream, WQ based limits were calculated for these ingredients and provided below:

Parameters	Criteria (ug/l)	Limit (mg/l)
Benzene	1.2 (HH. CRL)	0.10
Naphthalene	43 (Aq. CCC)	1.14
Total BETX (group of gasoline compounds)		Technology limit of 0.1

Therefore, effluent limits as following:

Parameters	Ave. mo. (mg/l)	Daily Max (mg/l)	IMAX (mg/l)
Benzene	0.10	0.20	0.25
Naphthalene	1.14	2.28	2.85
Total BETX	0.10	0.20	0.25

Fluoride Effluent limits are remaining in the permit as 12.5 mg/l as ave. mo. 25 mg/l as daily max. and IMAX 33 mg/l.

Total Iron
Due to usage of Chemical Additive: Ferric Chlorite as polymer, monitoring requirement is included for Total Iron in Part. A of the permit.

Total Dissolved Solids (TDS)

TDS limits for this renewal are revised. Previous permit had concentration limits of 3,939 mg/l as ave. mo. and loading: 151,221 lbs./day as ave. mo. The calculations were based on rates for the flow from Wet-Scrubbing Unit (WSU).

Recalculated TDS limits are based on provided data

Quench Water Recirculation - Purge Flow

January 1 to September 1, 2011	TOTAL DISSOLVED SOLIDS (mg/l)	SCRUBBER PURGE WATER (MGD)	Loading (lbs./day)
Annual Average	*31326*	*0.232*	*60,612*
Annual Max	*42395*	*0.265*	*93,697*

Following calculations were used:

a. For Average Monthly loading:
Wastewater discharge (6.22-0.265) allowable average monthly load using TDS stream criterion of 1000 mg/l is:
8.34 x (6.22-0.232) x 1000=49,940 lbs./day.

Therefore, total allowable average monthly TDS load = 49,940+60,612=110,552 lbs./day

b. For Daily Maximum loading:
Wastewater discharge (6.22-0.265) allowable daily maximum load using TDS stream criterion of 2000 mg/l is:
8.34 x (6.22-0.265) x 2000=99,330 lbs./day.

Therefore, total allowable daily maximum TDS load = 99,330+93,697=193,026 lbs./day

c. For IMAX loading:
Wastewater discharge (6.22-0.265) allowable IMAX load using TDS stream criterion of 2500 mg/l is:
8.34 x (6.22-0.265) x 2500=124,162 lbs./day.

Therefore, total allowable instantaneous maximum TDS load = 124,162+93,697=217,859 lbs. /day

And concentrations are:
Mo. Ave: 110,552 / (8.34 x 6.22) =2,131 mg/l
Max. Daily: 193,026 / (8.34 x 6.22) =3,720 mg/l
IMAX: 217,859 / (8.34 x 6.22) =4,200 mg/l

DRBC has conducted a determination of Total Dissolved Solids limit and approved a TDS effluent limit variance of 4108 mg/l (Docket D-1969-115-3). The previous permit had daily max limit 4108 mg/l. Existing limits are continued in this renewal and the limits are: Average Monthly 3939 mg/l (151,223 lbs./day) and Maximum Daily 4108 mg/l (206,204 lbs./day).

According to the Docket No. D-1969-115-3 the permittee is required to use the ambient velocity data collected in accordance with docket's condition and proper Q_{7-10} flow (159 mgd) to perform accurate TDS Modeling Study of the effluent from Outfall 015 to determine what area of influence is for TDS from Outfall No. 015 and the resultant mixing zone required to meet current DRBC WQR. The part C of the permit will include a special requirement to comply with the DRBC's requirement and submit the data before December 31, 2013 (see Other Requirement U. of the permit).

$CBOD_{20}$

The $CBOD_{20}$ allocation of 2170 lbs./day will remain in the permit in accordance with the DRBC's Water Quality Regulations.
Part A of the permit includes CBOD20's minimal percent removal requirement of 89.25%.
Part C of the permit includes the special requirement which specifies the conditions to calculate the monthly and weekly percent removal based on monitoring of the influent and effluent BOD5.
In accordance with the DRBC Docket D-1969-115-3 the permittee shall also conduct a study to establish a ratio between $CBOD_{20}$ and BOD_5. Once the ratio will be established the permittee shall make a request to reduce the $CBOD_{20}$ monitoring requirement. (Other Requirement I.V)

PCBs (TMDL Delaware Estuary):

PCBs' monitoring and minimization remain the same as in previous permit.

Whole Effluent Toxicity (WET)

For Outfall 015, ☒ **Acute** ☒ **Chronic** WET Testings were completed:

- ☐ For the permit renewal application (4 tests).
- ☒ Quarterly throughout the permit term.
- ☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
- ☐ Other:

The dilution series used for the tests was: 100%, 50%, 25%, 12.5%, and 6.25% and were based on provided by Delaware River Basin Commission site-specific guidance. The Instream Waste Concentration (IWC) to be used for analysis of the results is: 3.8%.

Summary of Results:

	***Ceriodaphnia* Results (% Effluent)**			***Pimephales* Results (% Effluent)**			
Test Date	**NOEC Survival**	**NOEC Reproduction**	**Acute LC50**	**NOEC Survival**	**NOEC Growth**	**Acute LC50**	**Pass? ***
11/30/2010 – 12/04/2010	50	50	>100	25	25	86.4	**Passed**
02/08/2011 – 02/14/2011	50	50	82	12.5	25	>100	**Passed**
03/22/2011 – 03/29/2011	-	-	-	25	25	>100	Retest **Passed**
04/12/2011 - 04/19/2011	100	50	>100	***<6.25***	***<6.25***	>100	**Passed**
06/07/2011 – 06/14/2011	100	100	>100	100	100	>100	Retest **Passed**
08/02/2011 – 08/09/2011	100	50	>100	50	50	>100	**Passed**
10/11/2011 - 10/18/2011	100	50	>100	50	25	>100	**Passed**

** A "passing" result is that which is greater than or equal to the TIWC value.*

Evaluation of IWC for:

Acute Partial Mix Factor (PMF_a): 0.56 of available acute flow 147.41 MGD

Chronic Partial Mix Factor (PMF_c): 1 at available chronic flow of 159 MGD.

1. **Acute (IWCa)**:

   (Q_d) / $(Q_{7\text{-}10}$ x $PMF_a + Q_d)$
   (6.22 MGD) / (147.41 MGD x 0.56 + 6.22 MGD) = 0.07 = IWCa = 7 %
   Target IWC_a = 7% / 0.3 = **$TIWC_a$ =23 %**

2. **Chronic (IWCc)**

   (Q_d) / $(Q_{7\text{-}10\ x}PMF_c + Q_d)$
   (6.22 MGD) / (159 MGD x 1 + 6.22 MGD) = 0.0376 = **$TIWC_c$= 3.76 = 3.8%**

WETT Analysis and Recommendation

It is recommended that ☒ **Acute** ☒ **Chronic** WET Testing be completed:

☐ With the permit renewal application.
☒ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term, with a limitation of ____TU_c for Chronic and ____TU_a for Acute
☐ Other:

Therefore, final effluent limitations for Outfall 015 are as follows: (flow = 6.22 MGD)

Parameter	Effluent Limits (lbs/day) Tech Based		WQBELs Effluent Limits (mg/l)		Effluent Limits (lbs/day) DRBC Regulatory		FINAL Effluent Limits (mg/l) / (lbs/day)	
	Average Month	Max. Daily	Average Monthly	Max. Daily	Average Monthly	Max. Daily	Average Monthly	Max. Daily
BOD5	1409.6	2653.4	30	60			27 /1410	51 /2653
TSS	1160.8	1824.2	30	60			22.4/1,161	35 / 1,824
COD	9673.7	18794.7					186/9,673	362 / 18794
Oil & Grease	442.2	829.2	15	30			8.5 / 442	15.9 / 829
Phenolic Compounds	7.2	19.4					0.13 / 7.2	0.37 / 19.4
Ammonia as N	525.15	1147.03	35	70			10 / 525	22 /1147
Sulfide	7.7	17.1					0.14 / 7.7	0.3 / 17.1
Total Chromium	8.5	24.3	1.97	3.94			0.16 / 8.5	0.4 / 24.3
Chromium, Hex	0.7	1.6	0.266	0.532			0.01 / 0.7	0.03 / 1.6
$CBOD_{20}$					2170		2,170lbs/day	
$CBOD_{20}$ Removal					89.25%		89.25%	
TDS					3939 mg/l	4108 mg/l	3939 / 151,221	4,108 / 213,102
TRO			0.5 IMAX	0.2			0.5 IMAX	0.2
Phenol					Report	0.5	Report	0.5
Fluoride			12.5	25.0			12.5 / 648	25.0 /1,297
Total Iron							Report	Report
pH (S.U.)	WITHIN 6.0 - 9.0		WITHIN 6.0 - 9.0		WITHIN 6.0 - 9.0		WITHIN 6.0 - 9.0	
Thallium			Report	Report			Report	Report
Lead			0.066	0.13			0.066	0.13
Benzidine			Report	Report			Report	Report
Hexachlorobenzene			Report	Report			Report	Report
N-Nitrosodimethylamine			Report	Report			Report	Report
Benzene			0.1	0.2			0.1	0.2
Naphthalene			1.14	2.28			1.14	2.28
Total BETX			0.1	0.2			0.1	0.2
Acute toxicity (Ceriodaphnia) (TUa)				Report				Report
Chronic toxicity (Ceriodaphnia) (TUc)				Report				Report

Acute toxicity (Pimephales) (TUa)				Report				Report
Chronic toxicity (Pimephales) (TUc)				Report				Report
PCBs (Dry Weather)								Report
PCBs (Wet Weather)								Report

CHEMICAL ADDITIVES

Chemical additives usage rate have been approved for previous amended permit issued on February 7, 2011. The new chemical additives were requested. Chemical Additives protection report summary for additional chemical additives is provided below:

DEVELOPMENT OF IN-STREAM WATER QUALITY CRITERIA

Chemical Additive	In-Stream Criteria (mg/l)			Carcinogen	
	SCC-Aquatic Chronic 4 day Average	SMC-Aquatic Acute 1 hour Maximum	Human Health Average *	Yes	No
BPR 82365	0.53	4.75	n/a		✓
BPR 76001	1.7	15.3	Chapter 93 [1]		✓
BPW 76910	0.033	0.3	0.14 [2]	✓	
TGD 1156	0.20	1.81	n/a		✓
Y9BH 1233	0.15	1.35	1.4 [3]		✓
Y9BH 1351	0.0012	0.012	0.00007 [4]	✓	
Nalco 7473	0.69	6.25	n/a		✓
Nalco EC 1495A	0.45	4.11	n/a		✓
Nalco 2656A	0.75	6.78	Chapter 93 [5]		✓
ChemTreat FO-621	0.14	1.27	n/a		✓
ChemTreat FO-920	0.20	1.81	2.0		✓
Ferric Chloride	0.13	1.16	0.3 [6]		✓
Acetic Acid (BRS2755)	0.52	4.64	Chapter 93 [7]		✓

* For CRL use Q_{hm} for an average in-stream concentration.
[1] HCL breakdown component (reg. biologist comment)
[2] Based on Naphthalene (reg. biologist comment)
[3] Based on Cyclohexylamine (reg. biologist comment)
[4] Based on acrylamide (reg. biologist comment)
[5] Based on Chapter 93 pH criteria (reg. biologist comment)
[6] Based on Iron (reg. biologist comment)
[7] Based on Chapter 93 pH criteria (reg. biologist comment).

Calculations were based on following table:

Flow Classification	Stream flow (MGD)	Flow available for dilution (MGD) Q_s
$Q_{7\text{-}10s(a/c)}$	159	$Q_{sc} = PMF_c \times Q_{7\text{-}10c} = 1 \times 159 = 159$
	82.55	$Q_{sa} = PMF_a \times Q_{7\text{-}10a} = 0.56 \times 147.41 = 82.55 \sim 83$
Q_{hm}	583 (for CRL) /	$Q_{s(CRL)} = PMF_{a/c} \times Q_{hm} = 1 \times 583 = 583$
$Q_{7\text{-}10c}$	159 (Taste and Odor (O&T))	$Q_{s(O\&T)} = PMF_c \times Q_{7\text{-}10c} = 1 \times 159 = 159$

ALLOWABLE USAGE RATE FOR CHEMICAL ADDITIVE

Chemical Additives	Based On Aquatic In-stream Aquatic Criteria				Based On in-stream Human Health Criteria			
	Average Value		Maximum Value		Average Value		Maximum Value	
	Conc. (c_1)=	Mass=	Conc. (c_2)=	Mass=	Conc. (c_3)=	Mass=	Conc. (c_4)=	Mass=

	$(Q_{sc} + Q_d) \times C_{4day}/Q_d$ (mg/l)	$8.34 \times Q_d \times c_1$ (lbs./day)	$(Q_{sa} + Q_d) \times C_{1hr}/Q_d$ (mg/l)	$8.34 \times Q_d \times c_2$ (lbs./day)	$(Q_{s(CRL/O\&T)} + Q_d) \times C_{hm}/Q_d$ (mg/l)	$8.34 \times Q_d \times c_3$ (lbs./day)	$(Q_{s(CRL/O\&T)} + Q_d) \times 2 C_{hm}/Q_d$ (mg/l)	$8.34 \times Q_d \times c_4$ (lbs./day)
BPR 82365	14.1	731.4	67.9	3522.3				
BPR 76001	45.2	2345.8	218.8	11350.2				
BPW 76910	0.88	45.5	4.3	223.1	1.3258	68.8	2.65	137.5
TGD 1156	5.3	275.9	25.9	1343.6				
Y9BH 1233	3.9	206.9	19.3	1001.2	37.24	1931.8	74.48	3863.6
Y9BH 1351	0.03	1.7	0.2	10.4	0.0066	0.34	0.013	0.7
Nalco 7473	18.4	952.1	89.4	4637.6				
Nalco EC 1495A	11.9	620.9	58.8	3050.2				
Nalco 2656A	19.9	1034.9	96.9	5026.7				
ChemTreat FO-621	3.7	193.2	18.2	944.1				
ChemTreat FO-920	5.3	275.9	25.9	1343.6	53.2	2759.7	106.4	5519.5
Ferric Chloride	3.5	179.4	16.6	861.1	7.98	413.96	15.96	827.9
Acetic Acid	13.8	717.5	66.4	3444.5				

PROPOSED / ALLOWABLE USAGE RATE

Chemical Additives	Allowable Concentration (mg/l) (most stringent values from the last table)		Allowable Mass (lbs./day) (most stringent values from the last table)		Proposed Usage Rate (lbs./day)		Approved or Not approved
	Average	Maximum	Average	Maximum	Average	Maximum	
BPR 82365	14.1	67.9	731.4	3522.3	25	100	Approved
BPR 76001	45.2	218.8	2345.8	11350.2	725	1,120	Approved and controlled by pH limit
BPW 76910	0.88	2.65	45.5	137.5	186	744	* Approved
TGD 1156	5.3	25.9	275.9	1343.6	4,800	8,000	Approved with 5.3 mg/l limit at all times
Y9BH 1233	3.9	19.3	206.9	1001.2	730	1,210	Approved for max. of 1000 lbs./day
Y9BH 1351	0.0066	0.013	0.34	0.7	125	375	Approved based on limit of 0.007 mg/l of Acrylamide at the effluent
Nalco 7473	18.4	89.4	952.1	4637.6		500	Approved
Nalco EC 1495A	11.9	58.8	620.9	3050.2		3,000	Approved
Nalco 2656A	19.9	96.9	1034.9	5026.7		25,000	Approved and controlled by pH limit
ChemTreat FO-621	3.7	18.2	193.2	944.1	143.6	359.0	Approved
ChemTreat FO-920	5.3	25.9	275.9	1343.6	148.8	364.5	
Ferric Chloride	3.5	15.96	179.4	861.1	1200	1500	Approved, controlled by pH limit with 6.0 – 9.0 STU at all times. Also effluent monitoring for Iron is included.
Acetic Acid BRS 2755	13.8	66.4	717.5	3444.5		42,100	

* The proposed rates are approved based on the nature of the product and the LC50 values of the ingredient Naphthalene which is only 0.1% of the total product BPW 76910.

Therefore, Chemical Additives List will be included in Part C. of the permit as followed:

Name	Usage Rate (lbs./day) Maximum Daily
BOILER POLYMERS	
BPB55715	559
SOLVENT	
Sulfolane	2,200
CAUSTIC	
Sodium Hydroxide	Controlled by pH Limit
OXYGEN SCAVENGERS	
BPB59396	250
BPB90001	1,215
SCALE INHIBITORS	
BPC60002	334
BPC68970	233
BPC65300	400
Y7BH972	1,071
ANTIFOAMS	
BPC67525	328
BPW76910	744
Nalco 7473	500
FO-920	364.5
FO-621	230
FO-120	40
FO-240	40
FO-114	100
CATIONIC WATER TREATMENT POLYMERS	
BPW76453	694
SPC680	375
SPC692	375
Y9BH1351	Controlled by effluent limit of 0.007 mg/l
BPW76001	Controlled by pH
COOLING TOWER POLYMERS	
BPC67275	575
Y9BH1246	3,188
Y8BH1129	2,224
NEUTRALIZING AMINES	
BPB59456	1,256
Y9BH1233	1,000
BPR81150	2,000
BPR82365	100
TGD1156	Controlled by effluent limit of 5.3 mg/l
Nalco EC 1495A	3,000
CORROSION INHIBITORS	
BPC68095	365
BPC68570	1,425
Y9BH1331	200

Nalco EC 1417A	120

ACIDS

EXCAL7511	67,200
EXCAL7551	48,000
Y9BH1330	45,000
BRS2755 (Acetic Acid)	Controlled by pH Limit
EC2656A	Controlled by pH Limit
Nalco EC 2483A	44,880
Phosphoric Acid	Controlled by pH Limit
Sulfuric Acid	Controlled by pH Limit
Citric Acid	Controlled by pH Limit

POLYMER

Ferric Chloride	Controlled by pH Limit

CLEANING AGENT

Chem Station 7021	130
Chem Station 6583	1000
Chem Station 5032	2800
Enviro Super Solvent	500
Enviro Power Clean	900
Enviro CV Cleaner	900
Mayco-Chemical-AMT 328	2lbs/Application
Citrikleen	150
United 657 Zyme-Flow	As Needed
Sanosil C	500
Sunny Sol 150	As Needed
Rust 2000 CG	As Needed
Rust HDC 305	As Needed
Chlorine	Controlled by TRO Limit
Zep TNT Product 0378	Controlled by TRO Limit
Rezyd-x	40

COOLING WATER INTAKE STRUCTURES

There is Cooling Water Withdrawal System is existing at Girard Point Processing Area.
To determine if the facility's close-loop cooling water system is Best Technology Available (BTA) in implementation of Requirements of Section 316(b) of the Clean Water Act (CWA), the special condition is included in the permit as following:

COOLING WATER INTAKE STRUCTURE(S)

Section 316(b) of the Clean Water Act (CWA) requires establishing the best technology available (BTA) for minimizing adverse environmental impacts associated with the use of cooling water intake structures. As the operator of a facility with an existing cooling water intake structure, the following conditions apply:

A. *The location, design, construction and capacity of the facility's cooling water intake structure(s) must conform to requirements pursuant to Section 316(b) of the CWA and any state regulations effective at the time an appropriate BTA is approved by the Department.*

B. *The facility must submit the following information by December 31, 2015:*

1. *Source water physical data. This includes:*

a. *A narrative description and scaled drawings showing the physical configuration of all source waterbodies used by your facility, including areal dimensions, depths, salinity and temperature regimes, and any other*

documentation that supports your determination of the water body type where each cooling water intake structure is located;

b. *Identification and characterization of the source waterbody's hydrological and geomorphologic features, including the low flow and mean annual flow, as well as the methods used to conduct any physical studies to determine the intake's area of influence within the waterbody and the results of such studies;*

c. *Locational maps.*

2. *Cooling water intake structure data. This includes:*

a. *A narrative description of the configuration of each cooling water intake structure(s) and its location in the waterbody and water column;*

b. *Latitude and longitude in degrees, minutes, and seconds for each cooling water intake structure(s);*

c. *A detailed description of any racks, bars or screens, including dimensions and mesh size, if applicable;*

d. *A narrative description of the operation of each cooling water intake structure(s), including design intake flows, actual average intake flows, daily hours of operation, number of days of the year in operation and seasonal changes, if applicable;*

e. *Measured and/or calculated approach and through-screen velocities including a copy of the calculations used to determine velocities, if applicable;*

f. *A flow distribution and water balance diagram that includes all sources of water to the facility, re-circulating flows, and discharges;*

g. *A narrative description of the cooling towers, that includes detail about make-up water, blow down and cycles of concentration;*

h. *Engineering drawings of the cooling water intake structure.*

3. *Source water biological characterization data. The following may be determined from existing documentation, reports or biological studies:*

a. *A list of species (or relevant taxa) for all life stages and their relative abundance in the vicinity of the cooling water intake structure;*

b. *Identification of the species and life stages that would be most susceptible to impingement and entrainment. Species evaluated should include the forage base as well as those most important in terms of significance to commercial and recreational fisheries;*

c. *Identification and evaluation of the primary period of reproduction, larval recruitment, and period of peak abundance for relevant taxa;*

d. *Identification of all federal and/or state threatened, endangered and other protected species that might be susceptible to impingement and entrainment at your cooling water intake structures;*

e. *Identification of all aquatic invasive species recorded or observed in the vicinity of the cooling water intake structure.*

4. *A description of any technology or operational measures that are proposed or currently in place that minimize impingement and entrainment.*

5. *A plan to minimize impingement mortality which includes an evaluation of technologies and operational measures expected to minimize adverse environmental impact due to impingement at the cooling water intake structures.*

6. *A plan to minimize entrainment mortality which includes an evaluation of technologies and operational measures expected to minimize adverse environmental impact due to entrainment at the cooling water intake structures.*

C. *If the Department requests any additional information to review any submission required by this permit regarding Section 316(b), the permittee shall submit the additional information within 30 days of receipt of the Department's request.*

D. *The permittee must maintain and retain data and other records for any information developed pursuant to Section 316(b) for a minimum of ten years.*

E. *The information submission requirements for Section 316(b) of the CWA are for the purpose of establishing BTA for minimizing adverse environmental impacts associated with the use of cooling water intake structures. This permit may be modified to incorporate additional requirements as information becomes available to the Department.*

F. *The permittee is allowed to use EPA's site visit report dated July 14, 2009 to develop report on the cooling water intake technology.*

REQUIREMENTS APPLICABLE TO STORMWATER OUTFALLS

There are special requirements in regards to stormwater outfalls which included in Part C. of the permit.